

CLAIMS

We claim:

1. A substrate impregnated with a volatile material to be dispensed from the substrate, the substrate comprising:

5 a substrate formed from a medium having pores and passages, and having a polymeric material coating interior surfaces of the pores and passages; and volatile material disposed in the pores;

wherein the volatile material is more volatile than the polymeric material and the polymeric material inhibits the volatile material from clogging the substrate if the
10 substrate is heated.

2. The substrate of claim 1, wherein the polymeric material is a polysiloxane.

3. The substrate of claim 2, wherein the polysiloxane is selected from the group consisting of polyalkylsiloxanes and polyalkylarylsiloxanes.

15 4. The substrate of claim 3, wherein an alkyl group in the polysiloxane is a C₁ to C₁₀ alkyl group.

5. The substrate of claim 4, wherein the polysiloxane is selected from the group consisting of polydimethylsiloxane, polymethylphenylsiloxane, and polymethyloctylsiloxane.

20 6. The substrate of claim 1, wherein the polysiloxane has a molecular weight of 750 dalton or greater.

7. The substrate of claim 1, wherein the substrate is capable of being heated at 200°C so as to release at least 90 percent of the volatile material from the substrate.

25 8. The substrate of claim 7, wherein the substrate is capable of being heated at 200°C to release at least 95 percent of the volatile material from the substrate.

9. The substrate of claim 1, wherein the substrate is selected from the group consisting of wicks, mats and plugs.

30 10. The substrate of claim 1, wherein the medium is selected from the group consisting of ceramics, sand, sawdust, cellulosic materials and metals.

11. The substrate of claim 10, wherein the medium is a ceramic.

12. The substrate of claim 1, wherein if the substrate is heated to 200°C for 24 hours the polymeric material therein will not have decomposed as a result thereof.

13. The substrate of claim 1, wherein the polymeric material is a phenolic material.

14. The substrate of claim 13, wherein the phenolic material is a phenol formaldehyde.

5 15. The substrate of claim 1, wherein the polymeric material is a polyurethane.

16. The substrate of claim 1, wherein the polymeric material is a fluorocarbon polymer.

10 17. The substrate of claim 16, wherein the fluorocarbon polymer is selected from the group consisting of polytetrafluoroethylene and polydifluoroethylene.

18. The substrate of claim 1, wherein the polymeric material is less than 4% of the substrate by weight.

15 19. The substrate of claim 1, wherein the volatile material is selected from the group consisting of insecticides, insect repellants and insect growth regulators.

20. The substrate of claim 19, wherein the volatile material is pyrethrum and the medium is a ceramic.

21. The substrate of claim 19, wherein the volatile material is a terpene.

22. A method for forming a substrate impregnated with a volatile material, the substrate comprising:

a substrate formed from a medium having pores and passages, and having a polymeric material coating interior surfaces of the pores and passages; and

5 a volatile material disposed in the pores;

wherein the volatile material is more volatile than the polymeric material and the polymeric material inhibits the volatile material from clogging the substrate if the substrate is heated;

the method comprising:

10 providing the porous medium;

dissolving the polymeric material in a volatile solvent to form a solution;

allowing the solution to wick into the pores and passages; and

permitting the substrate to expel at least a portion of the volatile solvent from the substrate.

15 23. The method of claim 22, wherein the solvent is selected from the group consisting of tetrahydrofuran, dioxane, methylene chloride, chloroform, acetone, supercritical carbon dioxide and dimethylsulfoxide.

24. The method of claim 22, wherein the expelling of the solvent is aided by heat, negative pressure, and/or passing a gas over a surface of the substrate.

20 25. The method of claim 22, wherein the medium is a ceramic medium and the polymeric material is a polysiloxane material.

26. A method for forming a substrate impregnated with a volatile material,
the substrate comprising:

a substrate formed from a medium having pores and passages, and
having a polymeric material coating interior surfaces of the pores and passages; and

5 a volatile material disposed in the pores;

wherein the volatile material is more volatile than the polymeric
material and the polymeric material inhibits the volatile material from clogging the
substrate if the substrate is heated;

the method comprising:

10 mixing a polymeric material with a second material that can form a porous
medium having pores and passages; and

subjecting the mixture to a process that can be used with the second material
alone to form a porous medium having pores and passages.

27. The method of claim 26, wherein the polymeric material is in the form
15 of beads.